DRONE SEC
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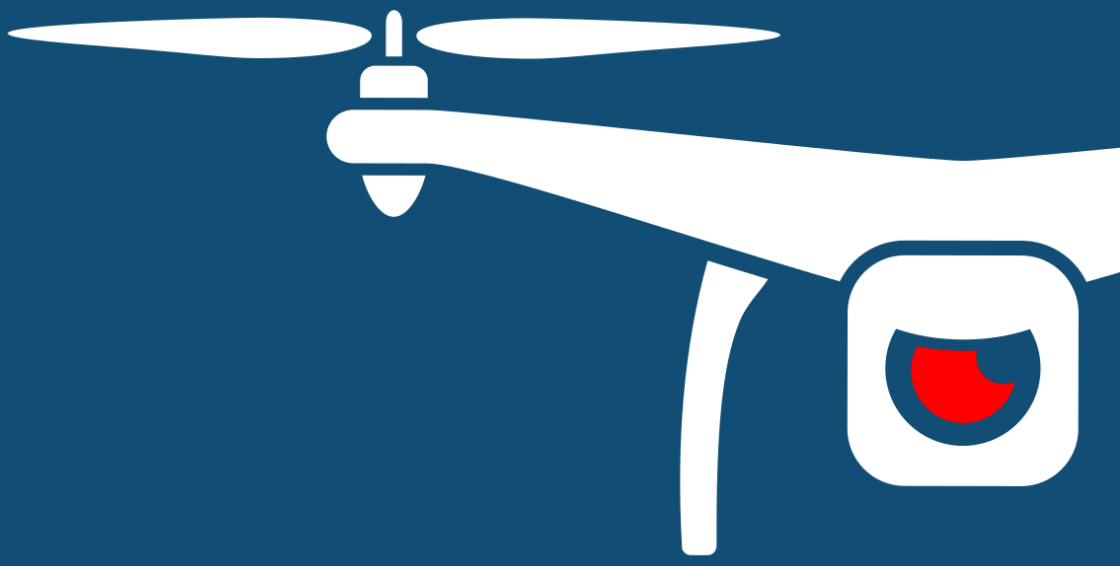
NOTIFY ISSUE #69 (PUBLIC)

WEEKLY THREAT INTELLIGENCE

09 April 2021 | v1.0 RELEASE



UAS HACKING, HARDENING AND DEFENCE

UAS PENETRATION TESTING
COUNTER-UAS CONSULTING
FORENSICS & INCIDENT RESPONSE
AERIAL THREAT SIMULATIONS
DRONE SECURITY MANAGEMENT PROGRAMS

DOCUMENT **CONTROL**

PREPARATION

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EXECUTIVE SUMMARY

The GDSN #3 is only three weeks away, going live on the 27th and 28th of April 2021!

The GDSN is a non-sponsored event which brings the best-of-breed Cyber-UAV security, UAS Threat Intelligence, Counter-UAS and UTM security minds into one place. It will be fully remote, accessed online and suitable to multiple time zones.

Whilst previously only having speakers by invitation, we're accepting applications based on feedback for a variety of advanced topics concerning the theme: Drone Security Doctrine and Tradecraft

For attendees register your virtual spot now: https://www.eventbrite.com.au/e/global-drone-security-network-3-tickets-148883593837

For speakers, please register your talk application to info@dronesec.com with the following information:

`Full Name, Company, Contact Details, Presentation Topic and 100-word Description, Timezone`

The start of a new month brings on a monthly roll-up of the statistics we've observed so far. This is reserved for Notify PRIVATE newsletter subscribers or platform customers. Subscribers enjoy receiving this report up to two days before (or real-time via the platform).

Parrot, maker of the ANAFI USA drones, has formally announced their launch of a private and public bug bounty program – a way for any hackers to assess their products and be financially rewarded for submitting those findings for remediation. Currently, they are only the second drone manufacturer to do so, after DJI's bug bounty program.

This story and more, in today's report.

As always, if you have comments or feedback, want to join in the discussion in our slack discussion group, or find the system that captures this information please don't hesitate to contact us.

- *Mike Monnik, DroneSec CTO*

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1. THREAT INTELLIGENCE

1.1. MONTHLY ROLL-UP

As we enter a new month, Notify features an aggregated summary of drone incidents, types and affected sectors in 2021 and collated numerical data on drone incidents. Extended analytics with full database-searchable functionality is only offered to our paid members via the DroneSec Notify Platform.

Below you will find some handy statistics to measure correlation, location and systems involved over data we have collected for March 2021. Anything we have missed? Anything you would like to see? Drop us a note at info@dronesec.com to get in touch with the team.

2021 in Summary

DroneSec recorded five hundred and ninety (590) artefacts in the past three months which equates to roughly six (6) artefacts per day. March 2021 recorded quite a number of drone strikes between Yemen and Saudi Arabia as the Houthi terror group ramp up on the frequency of attacks against Saudi Arabia. Also, DroneSec recorded cases of voyeurism with drones as well as a very interesting counter drone technique occurring in Pakistan - with a bite. The statistics below are for the month of March 2021, with artefacts from Notify release #64 - #68.

Month	Number of Artefacts	Global number of artefacts per day	Month on month increase
January	204	6.58	N/A
February	175	6.25	-29 (-14.8%)
March	211	6.81	36 (17.1%)
Total (2021)	**590**	**6.56**	N/A

The month of March 2021 saw a surge in the number of drone incidents. DroneSec observed drones used by (1) by terror groups for drone strikes; (2) criminals to commit burglaries, deliver contraband into restricted areas and perform voyeurism; and (3) hobbyists to fly into No-Fly Zones such as stadiums, airports and private properties. DroneSec continually observes that as more users find use cases for drones, there is a global increase in the number of drone related crimes and incidents.

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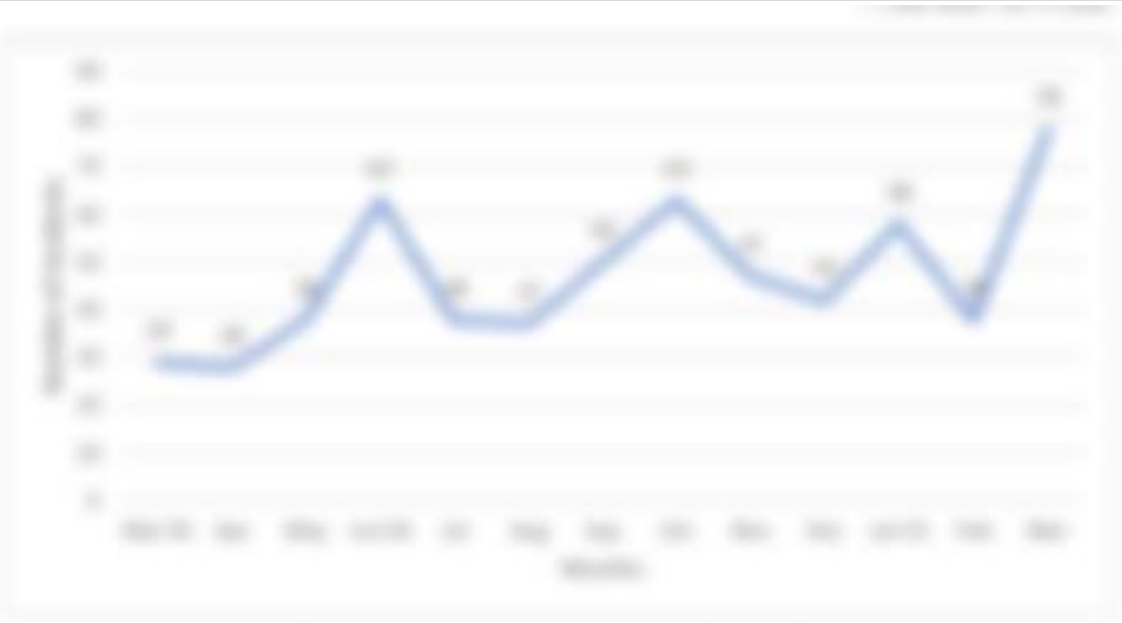

Figure 1 Number of Incidents Since March 2020

Incidents Areas

Dronesec has recorded some of the key metrics for which can help assess historical data and determine if patterns exist amongst similar events.

For areas where drones usually operates in, Dronesec categorised these areas into eight different sectors, with seven of them being restricted areas or No-Fly Zones (NFZ) and the last one being Open Areas where drones can fly freely without infringing into existing drone laws.

March 2021 saw a larger number of drone incursions happening in prisons and residential areas. What was more surprising was the uptick in number of drone incidents occurring near homes. This is a setback to the drone industry as most privacy concerns came from residents who disagree that drones can be used as a surveillance tool for looking in private property without the need for a warrant as drones do not legally enter private areas unlike tradition search methods. This set back will see more resistance against the use of drones within our environments, which have been proven useful and effective.

Month	Prisons	Country Areas or Estates	National Borders	Residences	Aerodromes	Airport Facilities	Government Facilities	Open Areas
Feb 2021	1	0	0	10	0	0	0	1
Mar 2021	1	3	0	3	0	0	1	0
+/- Mar	+0	+1	0	+0	+0	0	+0	+1
Total 2021	10	10	20	21	10	0	12	20

Figure 2: Number of Drones Incidents by Location of Occurrence (since January 2021)

Categories of Crimes

Dronesec has also recorded the type of incidents that were committed and grouped them into five categories. March 2021 had a spike in the number drone strikes occurring due to the increase in attacks by the Yemeni Houthi rebel group. In addition, Dronesec also recorded a number of incidents that resulted in intrusions and trespasses into restricted zones. One example recorded was when a DJI Phantom drone carrying a flag protesting against Bilbao (Spain) hosting Euro 2020 soccer fixtures intruded into San Mamés Stadium during a soccer match. Another included multiple Naval Destroyers reportedly swarmed by multiple drones off the coast of California. This incident bears much resemblance to the incident in Palo Verde Nuclear Power Plant in nearby Arizona, where multiple drones sightings were reported.

While it is plausible to install drone detection and mitigation systems at these places, the cost of such systems outweighs the pros of a drone and the replaceability of downed systems to ineffective operations. Dronesec advocates for protected and restricted facilities to adopt procedures relating to drone incidents. However, much of this industry participation relies on the governmental political and executive arms prioritising the importance of having counter drone measures in place in order to better prevent or reduce the occurrences of such events.

In addition, agencies should also take time to carry out tabletop simulations to better determine the exact processes and communication flow required to handle drone incidents. Critical infrastructure facilities, prisons and territorial borders with frequent incursions should prioritise the development of counter drone measures to guard against rogue drones.

The widespread use of drones in these few countries have also led to strict drone laws implemented to curb against such incidents. However, for the Middle East, it is difficult to deal with terrorist organizations as laws may not be enforceable and these terror groups will continue to fly their drones irresponsibly to achieve their intended aim.

Seizures vs. Non-Seizures of Drones

For all the drone incidents that were recorded in January 2021, Dronesec observed seizures of drones by law enforcement agencies in 66% of publicized incidents. This is a relatively higher figure than 2020 (51%), but the eventual number may gear towards that throughout the remaining months of 2021. Of the remaining 34% cases, the drones were not found despite a thorough search in the vicinity.

One noteworthy article Dronesec recorded was from Scotland where law enforcement officers were given drones that was seized from criminals. This is an interesting use of criminal enablers where such drones can be "reused" to serve and aid police departments in their fight against crime. This is a good use case for capturing drones via soft-kill methods that protect onboard data for forensics and keep the integrity of the system users intact.

Of note, most areas which have reported success in seizing drones were areas that have faced multiple drone intrusions before. However, Dronesec is starting to observe more restricted areas facing drone incursions and security personnel who are not prepared for such incidents, leading to the drone accomplishing its task and escaping before any mitigation action can be performed.

Figure 2: Percentage of Drone Incidents Where the Drone was Seized (Drone January 2021)

Apprehensions vs. Non-Apprehensions of Drone Operators

Conversely, only 29% of rogue drone operators were apprehended for their illicit act(s) in January 2021. Not only are drones small and versatile in escaping from the detection of law enforcement agencies, but it also creates a distance between the operator and the area of operations. Malicious operators will use this to their advantage and flock drone laws to conduct their illegal activities as risk of apprehension

- This concludes our monthly roll up for the artefacts we have consolidated for March 2021 -

1.2. FEATURED ADVISORIES

The prioritisation table and its dependencies are explained in Appendix A, and relate to how we filter, analyse and visualise the intelligence we collect.

Intrusion and Trespass	Priority
Man arrested for crashing onto rooftop of World Trade Centre, New York	P2

Figure 1 - Can't see this report? Featured analysis is only available to PRIVATE subscribers

Intrusion and Trespass	Priority
Drone and package containing contraband seized at Drummondville detention center, Canada	**P2**

Summary

Prison security officers managed to intercept a drone carrying a package flying into prison grounds.

Overview

A drone used to transport narcotics into Drummondville detention center in Canada was intercepted by prison security officers. While the method of interception was not stated, prison officers managed to get hold of the drone and the package, which contained narcotics, tobacco and various tools. The package and the drone were handed over to the national police force for further investigation.

Analysis

- Drones are good tools with a lower risk of being apprehended as operators are situated away from the area of operation
- Downed drones possess risk to operators as forensic analysis on data stored within can lead to exposure of identity

This incident reflects challenges prisons and restricted areas face nowadays. It is difficult to pinpoint the location of drones and drone operators. However, the risk of being traced due to visual sighting and/or forensics exploitation on a drone poses an exposure risk to the operators - an advantage to law enforcement agencies without drone detection systems. Although current laws may not permit the targeting and shooting of drones, law enforcement agencies can tail after a drone to its operator in order to apprehend him red-handed. Alternatively, forensics on the data stored within the crashed drone will expose drone operators as the drone video footages can allow law enforcement to trace the starting and end points of the drone, and facial recognition of the offenders may also be captured within the video, allowing easier investigation against the offender.

Threat Actor Group

Prison Drone Delivery Groups: https://help.dronesec.com/en/articles/4627721-prison-drone-delivery-groups

Recommendation

More individuals around the world are mimicking similar incidents as drones provide higher success rates with lower risk undertaken. Basic drone mitigation and preparation measures are recommended to respond to such incidents. Counter-drone systems that allow the detection of drones serve as a good step towards the prevention of drone deliveries. DroneSec advocates the needs for a drone threat management Standard Operating Procedure (SOP) or Incident Response (IR) plan where processes, people and methodologies in responding and handling drones and the operators are recorded and followed by all personnel. In this case, maintaining visual tracking and observation of the drone took place in lieu of forensic analysis, as the drone was not initially seized by prison officials.

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https://ring0TV.ca/un-drone-servant-a-acheminer-des-stupefiants-vers-le-centre-de-detention-intercepte-par-les-autorites-a-drummondville/

1.3. CYBER AND DATA SECURITY (P3)

Parrot launches bug bounty program to enrich data security of drones and infrastructure

https://dronelife.com/2021/04/06/parrot-launches-bug-bounty-with-yeswehack-to-up-security-analysis/

1.4. NON-CONFLICT NEWS AND EVENTS (P3)

Two men plead guilty for contraband delivery using DIY-drone into Telfair State Prison (update)

https://www.hstoday.us/subject-matter-areas/law-enforcement-and-public-safety/two-plead-guilty-to-operating-an-unregistered-drone-to-deliver-contraband/

Men charged for dive-bombing unregistered drone into law enforcement officers (update)

https://heraldcourier.com/news/state-and-regional/after-drone-dive-bombs-salem-police-and-firefighters-man-faces-federal-charge/article_c477d93d-8c32-5c49-85aa-7e31e01fd5fc.html

1.5. CONFLICT NEWS AND EVENTS (P3)

Two Houthi suicide drones targeting Khamis Mushait destroyed by Arab Coalition

https://english.alarabiya.net/News/gulf/2021/04/02/Arab-Coalition-intercepts-2-Houthi-explosive-drones-fired-at-Saudi-s-Khamis-Mushait

https://twitter.com/Yahya_Saree/status/1377729698298527748

Yemeni Army announcing the shooting down oif Houthi IED drone above Ma'rib

https://twitter.com/alainbrk/status/1379174229422321674

1.6. WHITEPAPERS, PUBLICATIONS & REGULATIONS (P3)

NAAA cautions drone operators not to disrupt low-flying agricultural aircrafts

https://www.agairupdate.com/drone-operators-cautioned-to-not-disrupt-low-flying-ag-aircraft-during-pandemic/

Attorney's perspective invasion of privacy from a drone (commentary)

https://www.prnewswire.com/news-releases/invasion-of-privacy-from-a-drone--attorney-frederick-penneys-perspective-301263218.html

Impact of the European Drone Regulation on UTM, U-Space and Enterprise Fleet Management

https://dronelife.com/2021/04/05/european-drone-regulations-expert-perspectives/

Meet the future weapon of mass destruction, the drone swarm (commentary)

https://thebulletin.org/2021/04/meet-the-future-weapon-of-mass-destruction-the-drone-swarm/

1.7. SOCIALS (P4)

National Defense - Counter drone technology (podcast)

https://nationaldefense.libsyn.com/april-2020-counter-drone-tech-healing-the-helicopter-industrial-base-and-the-progress-on-columbia-class-subs

Hobbyist voices challenges faced by drone operators when encountering police helicopters

https://mavicpilots.com/threads/sudden-often-unexpected-close-proximity-to-police-helicopters-creates-unique-challenges-for-drone-operators.109418/

Birmingham Airport showcases ability to detect, identify and track drone intrusions

https://twitter.com/UAVHive/status/1379128018740903936

Mavic 2 Pro loses signal during flight under Sunshine Skyway Bridge

https://www.youtube.com/watch?v=ywbO9rZgLaE

San Mateo PD to use drones to drop lifejackets to swimmers in need

https://www.facebook.com/SMCSheriff/posts/3978082045586427

1.8. COUNTER-DRONE SYSTEMS (P4)

Skeyes and Citymesh to test use of drones and counter drone systems around Brussels airport

https://www.brusselstimes.com/news/belgium-all-news/162944/skeyes-brussels-airport-tests-the-deployment-of-citymesh-drones-aviation-travel/

US Army receives Xtend's Skylord Griffon, a counter-drone drone collision AR system

https://www.unmannedairspace.info/counter-uas-systems-and-policies/xtend-announces-delivery-of-dozens-of-skylord-griffon-c-uas-units-to-us-army-special-operations-command/

Kratos Defense awarded USD$86M to support US Army with drone C2 systems

http://www.globenewswire.com/news-release/2021/04/05/2204245/224/en/Kratos-Wins-86-Million-Assuming-All-Options-Exercised-Single-Award-U-S-Army-Contract-for-Drone-Command-and-Control-Systems.html

KWESST signs agreement for AerialX GreyGhost counter-drone missile system

https://www.proactiveinvestors.com/companies/news/945801/kwesst-signs-exclusive-agreement-with-aerialx-drone-solutions-for-counter-drone-technology-945801.html

Fortem Technologies announces integration of DroneHunter into existing US Army C2 systems

https://www.everythingrf.com/News/details/12071-ai-enabled-drone-detection-solution-selected-by-the-us-army-joint-counter-uas-office

Skylock launches C-UAS hard kill system effective against drone swarms

https://www.unmannedairspace.info/counter-uas-systems-and-policies/skylock-launches-c-uas-hard-kill-system-effective-against-drone-swarms/

1.9. INFORMATIONAL (P5)

Two men electrocuted by hydro wire while trying to retrieve drone stuck in tree

https://montreal.ctvnews.ca/two-brossard-men-electrocuted-while-trying-to-retrieve-a-drone-struck-in-a-tree-1.5373522

Four-year-old autistic child found in desert after missing for 24 hours, drones deployed

https://www.abc.net.au/news/2021-04-03/missing-girl-near-alice-springs/100047248

Search and rescue team finds stranded hikers in Beus Canyon with aid from Matrice 300, Utah

https://www.fox5ny.com/news/drone-locates-stranded-hikers-in-utah

Thermal imaging drone spots 30 people partying under bridge despite Covid-19 regulations

https://www.standard.co.uk/news/crime/west-midlands-police-m6-motorway-bridge-thermal-drone-illegal-rave-b927309.html

DJI Matrice 300 drone finds missing woman who was lost for two days

https://dronedj.com/2021/04/05/chinese-woman-lost-for-three-days-found-by-a-drone-in-20-mins/

1.10. UTM SYSTEMS (P5)

South Korea prepares roadmap to launch UAM by 2025

http://www.businesskorea.co.kr/news/articleView.html?idxno=63742

Port of Antwerp working towards creation of drone ecosystem together with Unifly

https://www.commercialuavnews.com/infrastructure/the-port-of-antwerp-is-working-toward-the-deployment-of-autonomous-drones

Drones represent a flying traffic nightmare without planning (commentary)

https://www.freightwaves.com/news/without-planning-drones-represent-a-flying-traffic-nightmare

The NAAMA Project – towards a national drone network for delivery, transport and mobility

https://israeltrade.org.au/2021/04/07/the-naama-project-towards-creating-a-national-drone-network-for-commercial-delivery-medical-transport-and-urban-air-mobility/

1.11. DRONE TECHNOLOGY (P5)

Valkyrie drone successfully launches drone payload from inside its internal weapons bay

https://www.defensenews.com/air/2021/04/05/the-valkyrie-drone-launches-an-even-smaller-drone-from-inside-its-payload-bay/

3,281 drones used during Hyundai's Genesis opening ceremony

https://www.theverge.com/2021/4/4/22367182/hyundai-genesis-drone-show-guinness-world-record-china

NUAIR and DroneResponders to fast-track adoption of drones across states for safety operations

https://www.cnybj.com/nuair-florida-nonprofit-integrate-drones-public-safety-state-agency-operations/

Pacific County Coastal Police ramps up drone use for search and rescue operations

https://www.chinookobserver.com/news/local/sky-eyes-coastal-police-embrace-drones/article_6c4e826c-96fa-11eb-8389-b3c810653681.html

Atlanta PD to purchase drones with thermal camera to find suspects and missing persons

https://www.fox5atlanta.com/news/atlanta-police-to-purchase-infrared-drones-to-find-suspects-and-missing-people

For Appendix items please click this link.